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(54) Title: VACCINATION STRATEGY TO PREVENT AND TREAT CANCERS

(57) Abstract

A cellular immune response is induced to a non-immunogenic or weakly immunogenic target protein expressed by tumor cells, by administering to a mammalian subject an amount of a therapeutic antigen effective to induce a cellular immune response to the target protein. The therapeutic antigen is an immunogenic peptide having an MHC-binding portion which binds to the major histocompatibility complex (MHC) and an immune-recognition portion which is recognized by T-cells. The therapeutic antigen is derived from the non-immunogenic or weakly immunogenic target protein such that the MHC-binding portion binds to MHC with a greater affinity than the target protein without material alteration of the immune-recognition portion. The therapeutic antigen may include a sorting signal which directs the transport of the therapeutic antigen into the endoplasmic reticulum and into the endosome/lysosome to facilitate loading of the peptide onto MHC class I and class II molecules, respectively, to facilitate loading of the protein onto MHC molecules for presentation to the immune system.